A Patient Safety Toolkit for Family Practices

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Funding: This work was funded by the National Institute for Health Research School for Primary Care Research (NIHR-SPCR). The views expressed are those of the author(s) and not necessarily those of the NIHR, the NHS or the Department of Health.

Abstract

Objectives: Major gaps remain in our understanding of primary care patient safety. We describe a toolkit for measuring patient safety in family practices.

Methods: Six tools were used in 46 practices. These tools were: NHS Education for Scotland Trigger Tool, NHS Education for Scotland Medicines Reconciliation Tool, Primary Care Safequest, Prescribing Safety Indicators, PREOS-PC, and Concise Safe Systems Checklist.

Results: PC-Safequest showed that most practices had a well-developed safety climate. However, the Trigger Tool revealed that a quarter of events identified were associated with moderate or substantial harm, with a third originating in primary care and avoidable. Although medicines reconciliation was undertaken within 2 days in >70% of cases, necessary discussions with a patient/carer did not always occur. The prescribing safety indicators identified 1,435 instances of potentially hazardous prescribing or lack of recommended monitoring (from 92,649 patients). The Concise Safe Systems Checklist found that 25% of staff thought their practice provided inadequate follow-up for vulnerable patients discharged from hospital and inadequate monitoring of non-collection of prescriptions. Most patients had a positive perception of the safety of their practice although 45% identified at least one safety problem in the past year.

Conclusions: Patient safety is complex and multidimensional. The Patient Safety Toolkit is easy to use and hosted on a single platform with a collection of tools generating practical and actionable information. It enables family practices to identify safety deficits that they can review and change procedures to improve their patient safety across a key sets of patient safety issues.

Introduction

Patient safety has been defined as the "avoidance, prevention, and amelioration of adverse outcomes or injuries stemming from the processes of health care"[1] although it is a complex, multidimensional concept that is lacking an agreed operational definition in family practice. It encompasses many different dimensions, including *diagnostic and prescribing safety, communication* (both within and between practices and with other healthcare settings), *organisational safety culture,* and *patient reported problems*.[2]

Most healthcare interactions occur in family practice; for example, 340 million consultations being made annually in England.[3] Most of the literature on patient safety has focused on hospital-based services.[2] However, patient safety incidents occur in 2-3% of all clinical encounters.[4]

Family practice is thought of wrongly as inherently low-risk, so safety is sometimes not considered a critical problem.[5] However, serious errors leading to morbidity and mortality occur regularly in family practice[6]. Understanding the epidemiology of hospital errors proved crucial for improving safety in hospitals[7] and there needs to be a similar focus on primary care. It is important to know to measure patient safety in primary care[8]. While there are multiple tools [2], and some have substantial literatures, they are in isolation and not in a user-friendly single platform.

Moreover, there are major gaps in our understanding of primary care patient safety. [4] A major review of research between 2000 and 2010 found virtually no credible studies on how to improve safety in primary care[9]. To improve safety, one needs to be able to monitor and measure it.[10]

The National Institute for Health Research School for Primary Care Research (NIHR-SPCR) funded us to develop and evaluate a Patient Safety Toolkit for English family practices. This paper presents the quantitative results from the use of the Patient Safety Toolkit in a representative sample of English general practices to demonstrate the range of

tools available to practices that can be found in one Toolkit, and the patient safety issues that were identified. The development of the toolkit has been presented elsewhere.[2,11,12,13].

METHODS

Recruitment of family practices

After obtaining ethical approval from Nottingham1 REC (13/EM/0258) on 31/7/2013, an email was sent to GP practices via their local National Institute for Health Research Primary Care Research Network to ask if they wanted to be involved in the study. If the practice replied, a meeting was arranged with the respondent who was sent a recruitment pack to discuss the project and answer any questions. Participants who withdrew were not replaced in the analysis. Data were collected from June 2014 to April 2015.

We recruited 46 practices (10 in Birmingham, eight in Keele, eight in Manchester, 10 in the East Midlands, and 10 in Southampton) with 25 of these practices (10 in Birmingham, five in Keele and 10 in Southampton) also recruited to collect data on the prescribing safety indicators. Practices were recruited to be representative of English family practices in terms of practice size, demographic characteristics of the practice population, whether the practices were involved in GP training, and Quality and Outcomes Framework (QOF) scores .[14]

Each participant was assigned a code number for use on Case Report Forms (CRFs), which were used to collect data from each participating site, other study documents and the electronic database. Some of the tools, such as the NHS Education for Scotland Trigger Tool,[15] required that clinicians from each practice examine patient notes, but no patient identifiable information was fed back to the research team.

Testing of toolkit measures

Six tools were tested based on the development of the Patient Safety Toolkit. [10-11], Table 1 provides an overview of the tools. Descriptions of the tools are provided in Appendix 1. Staff in participating practices were asked to focus on specific tools in the Toolkit rather

than the full tool kit to spread the workload equally between practices. In each case, practical step-by-step methodologies for using each tool accompanied the relevant tool.

Insert Table 1 here

NHS Education for Scotland Trigger Tool

The Trigger Tool was used in 32 practices. Clinicians in these practices undertook electronic searches of their clinical computer systems to identify patients aged over 75 years with 'triggers', whose records were then reviewed to identify any patients that had been harmed. Clinicians recorded their findings and reported the results to the study team after removing patient identifiable information.

PC-Safequest

The PC-Safequest is an online, anonymised questionnaire completed by members of the general practice staff. It was completed by 335 staff members from 31 practices. Demographic characteristics of the respondents, such as gender, whether they worked part-time or full-time, and their role within the practice, were collected. After completing the questionnaire, each practice generated a report that gave the practice's score on the five dimensions of safety climate. Practice staff then discussed the report at a team meeting.

NHS Education for Scotland Medicines Reconciliation Tool

This tool was tested in 16 practices. Practices undertook an audit of the records of up to 20 patients[18] following hospital discharge to assess how promptly and how accurately medication changes suggested by the hospital had been made and whether the changes had been discussed with patients. Anonymised data were collected based on these audits.

Patient Reported Experiences and Outcomes of Safety in Primary Care (PREOS-PC)

A total of 6,736 questionnaires were sent to 45 practices, with 1,244 questionnaires returned. Analyses were conducted at the patient level and were based on individual items. Inverse probability weights, related to likelihood of response, were applied in the analysis to produce results more representative of the full practice populations, not just the patients who

participated. For each practice, data were extracted on the gender and age distributions of the patients registered, and separate gender and age probability weights were computed for each practice. The gender and age weights were then multiplied and rescaled for the weighted samples to match the practice list sizes. In general weighted results did not substantially differ from unweighted results.

Concise Safe Systems Checklist

Eight practices in Keele completed the Concise Safe Systems Checklist, which consisted of nine items that assessed potential gaps in safety in general practice. Staff members were asked to complete the checklist for the practice as a whole, not for their individual role, and consider whether they were satisfied with the safety of the systems as implemented by their practice.

Prescribing Safety Indicators

We implemented the PINCER Query Library in family practices in the Birmingham and Southampton areas of England (n=14). Computerized searches were run in the participating practices, and patients who were considered ‘at risk’ were highlighted. For each of the prescribing safety indicators, the number and percentage of patients considered ‘at risk’ were identified. Anonymised results were uploaded to CHART Online and aggregated views were made available to practices and CCGs. We also undertook a qualitative study to investigate the views of primary care staff on the Patient Safety Toolkit, and their experiences of implementing the tools. The detailed results of the qualitative study are not reported here, but some summary findings are provided.

RESULTS

The practice characteristics for all of the practices and for the practices that completed each tool are provided in Table 2. The practices were reasonably representative, although our sample practices had more registered patients than the English average and had a larger percentage of non-white patients.

196 Insert Table 2 here

197 **NHS Education for Scotland Trigger Tool**

198 Most of the triggers (71%) fell into one of three categories: (1) three or more
199 consultations in 7 days (2) new significant diagnosis or (3) out-of-hours/A&E attendance
200 (Appendix 1, Table A). The harm scores for the Trigger Tool reveal that more than a quarter
201 of the events (n = 35; 27%) were considered likely to cause moderate or substantial harm,
202 38% of the events (n=49) were considered potentially preventable and to have originated in
203 primary care.

204 **PC-Safequest**

205 The average scores ranged from 4 to 6, which means that staff members generally
206 thought that their practices had a moderately well-developed safety climate (scale score of 4),
207 or achieved a well-developed safety climate to a 'considerable' (scale score of 5) or 'great'
208 (scale score of 6) extent (Appendix 1, Table B). Appendix 1, Table C provides the intraclass
209 correlations coefficients (ICC) and reliability coefficients for the PC-Safequest scales. The
210 ICCs revealed little clustering within practices for the Communication and Safety Systems
211 scales, which are poorer at discriminating between practices than the other scales. The
212 practice mean reliability coefficients were all less than 0.7, which meant that none of the PC-
213 Safequest scale scores met the accepted standard for reliability.

214 **NHS Education for Scotland Medicines Reconciliation tool**

215 Appendix 1, Table D shows the percentage of 'Yes' responses to the 6 questions that
216 composed this tool; 85% of medicines reconciliation occurred within two days. However,
217 discussions with the patient or carer did not occur 53% of the time even though such a
218 discussion was considered clinically necessary more frequently than this (57%).

219 **Patient Reported Experiences and Outcomes of Safety in Primary Care (PREOS-PC)**

220 Results from the PREOS-PC questionnaire are detailed elsewhere[19,20]. We received
221 responses from 1,244 patients (response rate: 18.4%). As noted earlier, due to the use of

weighted percentages (weighted by gender and age), 1,244 patients form the denominator of all percentages that follow. Participants had a positive perception of the overall safety of their practice, with a mean (SE) score of 8.5 (0.2) points out of 10 points on a visual analogue scale, and with 91% (n=1,072) of them agreeing that their providers were trustworthy.

However, a total of 479 patients (45%) reported having experienced at least one safety problem with the healthcare provided in their practices in the previous 12 months. Most frequently reported problems were related to appointments (33%, n=353), diagnosis (17%), patient-provider communication (15%), co-ordination between professionals in the practice (14%), co-ordination between professionals from different settings (11%) and problems with medication (4%).

A total of 221 patients (23%) reported having been harmed as a result of the healthcare provided by their practice in the previous 12 months, mostly in the form of anxiety or stress problems (18.5% n=147), limitations in social activities (14%), and pain (11%).

Prescribing Safety Indicators

Numbers (numerator/denominator and percentage) of patients identified as being at risk of medication error for each of the prescribing safety indicators are shown in Appendix 1, Table E. The eight prescribing safety indicators identified 1,435 instances of potentially hazardous prescribing or lack of recommended monitoring in a total population of 92,649 patients. Compared to findings from the PINCER Trial,[21] the proportion of patients identified at risk for each of the prescribing safety indicators was similar or lower, with the exception of the indicator relating to the monitoring of patients receiving warfarin, which was higher.

Concise Safe Systems Checklist

All of these practices closely matched the English average as shown in Table 2. Appendix 1, Table F shows the responses to five of the checklist items, the other 4 items on the checklist exhibited ceiling effects with all of the respondents responding ‘Yes’. Although

most (75% or more) of the respondents thought that their practices performed well, there is clearly room for improvement in two areas: 1) follow-up of vulnerable patients who were discharged from hospital and 2) non-collection of prescriptions.

Summary of qualitative findings

The concept of a balanced toolkit that used a combination of tools to address a range of safety issues proved popular with healthcare professionals and office staff. Tools that could be completed quickly and easily, such as the PC SafeQuest survey and the Concise Safe Systems Checklist, were favoured. Multiple competing demands on the practices meant that there was some reluctance to commit to using all aspects of the Toolkit on a regular basis.

DISCUSSION

We have described the use of a multiple tool Patient Safety Toolkit for measuring patient safety in family practices in England. The utility of the toolkit is that it covers a wide range of patient safety issues and is a collection of tools and knowledge that enables practice staff to monitor and measure, and hence improve safety and effective care to patients. The Patient Safety Toolkit serves also as a general guide to applying safety improvement methods in family practice settings. The tools enable practice staff to create baselines and ongoing sets of data regarding patient safety using common methodologies and provide evidence at both a personal (GP Revalidation and appraisal) and practice (Care Quality Commission) level on the safety of care in the practice. This will support organisational learning and good practice and offers a practical way for practices to show their commitment to the measuring and monitoring of patient safety [8] while also motivating the staff who deliver the care. Such team based learning enables practice teams to implement evidence-based patient safety tools and turn their ideas into best practice and safer outcomes.[23]

Practice staff reported that their practise had at least a moderately well-developed safety climate using the PC-Safequest tool. Safety climate refers to the perceived value

placed on **safety** in an organisation by those who work there. However, the Patient Safety Toolkit identified safety deficits using its range of tools that allowed practice staff to review and change procedures to improve patient safety.

The Trigger Tool identified undetected patient harm. It revealed that 27% of events found in patient records were associated with moderate or substantial harm and that 38% were potentially preventable and thought to have originated in primary care. This study confirms that the utility of the Trigger Tool in English family practices, in keeping with findings from Scotland.[24]

The NHS Education for Scotland Medicines Reconciliation Tool showed that discussions with the patient or carer did not always occur when considered clinically necessary. Cresswell[25] noted that communication between patients and health professionals was a source of patient safety incidents if health professionals do not engage in collaborative communication.[26]

The PREOS-PC showed that patients had a positive perception of the overall safety of their practice. However, almost half reported at least one safety problem in the last 12 months.[27] The most frequently reported problem was with appointments and access to care and reinforced the fact that patients focus on a wider range of issues when making evaluations of the safety of the care they receive and perceive to be available.[28] Moreover, we measured whether a problem had occurred, but did not appraise the potential severity of such problems. This inclusive approach may have resulted in the identification of a substantial number of minor problems.

There are a complex series of transitions and interfaces along the patient journey.[29] Information exchange, coordination and communication among providers and organisations across these interfaces underpin many patient safety issues.[30] The Concise Safe Systems Checklist revealed that although most of the respondents thought that their practice

performed well, there are safety deficits in the follow-up of vulnerable patients discharged from hospital, and how the practice deals with the non-collection of prescriptions.[31]

Prescribing errors are common in English general practice, although severe errors are unusual at around 0.2%.[32,33] The prescribing safety indicators identified 1,435 instances of potentially hazardous prescribing or lack of recommended monitoring in a total population of 92,649 patients. The value of prescribing safety indicators is that they improve safety by identifying patients at risk in order that prescribing problems can be tackled before patients come to any harm.[34]

Conclusion

One of the strengths of our Toolkit is that it addresses safety deficits highlighted in the patient safety literature, such as prescribing and coordination and data flow between and among providers. The Toolkit has used or adapted Scottish tools for assessing safety in primary care, which are available freely through the NHS Scotland website.[15,18] It addresses gaps in the literature by using new tools, such as the PREOS-PC and the Concise Safe Systems Checklist, although some areas, such as diagnostic error, have been neglected in the literature, which means that the Toolkit is not comprehensive.

A recent report by the National Patient Safety Foundation (NPSF) in the US concluded that "little is known about the epidemiology of patient safety in settings outside of hospitals and about potential strategies for improvement, even though most care is delivered in these settings".[35] The Patient Safety Toolkit includes a range of safety tools in an accessible format that allows practice staff to measure and identify many facets of patient safety in family practices.

Making care in family practice settings safer requires a range of skills to measure and monitor safety that requires both usable information and the ability to use that information to identify and implement appropriate changes in care. The Patient Safety Toolkit is designed to

assist family practice staff to develop and apply these skills using easy-to-use tools hosted on a single site platform.

The Royal College of General Practitioners, funded by the NIHR Greater Manchester Primary Care Patient Safety Translational Research Centre, hosts an online version of the Toolkit as part of their 'Spotlight projects', which gives clinicians globally access to the Toolkit: http://www.rcgp.org.uk/clinical-and-research/toolkits/patient-safety.aspx. This will help general practice staff to monitor and improve patient safety. Future work could further establish the reliability and validity of the various tools and determine whether the routine use of the Toolkit results in improvements in patient safety in family practice.

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